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An Empire Builder—Grenville M. Dodge

TO few men has fate given such opportunity or nature such ability as were lavished on Grenville M. Dodge. By calling a soldier, his work was that of a civil engineer. The builder of a railroad, he was in fact an empire builder.

Well equipped by an excellent engineering and military training at Norwich University, Dodge, an Easterner, early went West. The Civil War came and the feats of his Iowa troops in battle and in rebuilding demolished railways and bridges earned for him rapid promotion. At 33, he was a Major-General.

Thereafter for almost fifty years (General Dodge died at the age of eighty-four) he played a leading rôle in that exciting drama—the winning of the West.

The story of that struggle is one of outstanding men, of whom Dodge was one—men of ability, strength, and power. Mountains, deserts, and Indians were to be encountered—not the least of which were the Indians, and Dodge, a nice judge of both the inanimate and the animate foe, won where others failed.

His success with the Indians came as the result of the respect they bore for him. When as a young man he first went out on the plains surveying, previous to the war, he had occasion at times to make with his instrument sights of two miles or more—further than even an Indian could see a flag. This earned for him the sobriquet of “Long Eye” and no end of notoriety. They said, too, that he could shoot to kill as far as he could see.

It was by no means due to tricks, however, that he won and held their respect. Never was any member of his staff—even the interpreter—per-

(Continued on page 4)

Society Membership

	Oct. 20 1925	Oct. 19 1926
Members	4988	5171
Associate Members ...	5252	5432
Honorary Members ...	13	14
Juniors	793	1008
Affiliates	155	151
Fellows	8	8
Total.....	11209	11784

Columbia Scholarship Goes to J. J. Domas

THE governing bodies of Columbia University have placed at the disposal of the Society, a Scholarship in Civil Engineering in the Schools of Mines, Engineering and Chemistry of Columbia University.

The Scholarship pays \$350 toward the annual tuition fees, which vary from \$340 to \$360, according to the details of the course selected.

The attention of the membership was called to this opportunity in the April, 1925, “Proceedings” and subsequently through the medium of the Local Sections, with the result that Joseph J. Domas was recommended by the Faculty Sponsor of the Student Chapter at Brooklyn Polytechnic Institute and has been named for the scholarship by the Society committee having the matter in charge.

Mr. Domas is 22 years old, a graduate of Brooklyn Polytechnic Institute, and is interested in graduate work in Sanitary Engineering. Mr. Domas also was the recipient of the prize of Junior Membership in the Society awarded by the New York Section.

Philadelphia Convention

A Record Meeting in Every Respect

BIGGEST and best—that describes it in a nutshell. Some 1140 members and guests who attended the Philadelphia Convention will vouch for it.

Nothing was lacking. There were business meetings and technical sessions—that goes without saying—and they were especially good, too. But then on top of them were historic visits, bus rides, engineering trips, dinners and lunches galore—and, not the least, the Sesqui. The City of Brotherly Love, its engineers, police, industries, university, in fact the entire community, seemed bound on nothing but the utmost of fellowship and entertainment. When it is considered that the high pitch of keeping this crowd happy was sustained to the very end of the week, it may be realized that the convention was a grand success.

Lest it be thought that Philadelphia was Utopia, it must be recorded that the Certificate Plan did not go through. But this was not for lack of team work. Other methods of buying tickets and of travel militated against it. Even so the American Society of Civil Engineers validated more certificates by far than any other Convention that has come to Philadelphia this year. Thus what seems like the only flaw in the complete perfection of an ideal meeting was in reality a creditable success.

Of good fellowship there was no lack. This reached its climax, perhaps, in the carnival on Thursday night, a party given by the Philadelphia Engineers Club. There was lots of entertainment, lots of noise and lots of laughter. As someone tersely described it, “Look at them; and they aren’t drunk, either!”



Philadelphia Convention—A party of engineers, students and guests enjoying the hospitality of the University of Pennsylvania, October 6, 1926

Long will the memories of the meeting remain—the lights and shadows of a busy, enjoyable week; the earnest interest in the technical papers; the heart-throbs as one viewed Munkacsy's "Christ Before Pilate"; the lumps in the throat at Christ Church and Valley Forge! The fickle weather-man, himself, contributed—dealing out his best wares.

The words of appreciation for all the admirable plans were generous and heartfelt. Many happy friendships had been made or renewed. Even the bugler boy and the traffic cops had become integral parts of the Convention. The time for regretful "good-byes" came all too soon. As the groups parted, weary but happy, the note was one of satisfaction—of anticipation exceeded, of a meeting thoroughly worth while.

Society Hospitality

WITH the coming of the fall of the year, the Society has the privilege of acting as host to other organizations of kindred mind and purpose.

The Society's "Board Room," really beautiful and commodious, located on the 15th floor, and well away from most noises (except the ever-present riveting hammer) proves ideal as a meeting place for committee work.

During September, on the 9th, a sub-committee of the American Engineering Standards Committee, studying the Use of Specifications in Foreign Trade, was entertained.

On the 14th, a Research Committee on "Elevators" of the American Society of Mechanical Engineers met

there and on the 24th the room was placed at the disposal of the Boiler Code Committee of the same Society.

On the 23d, the Trustees of United Engineering Society held their regular monthly meeting, and on the 28th the room provided a home for the "Sectional Committee on Standard Specifications for Cement" under the sponsorship of the American Society for Testing Materials.

Technical and Semi-Technical

UNDER the heading "Some Activities of the Los Angeles Section . . . from 1914 to 1925 inclusive," in a publication issued by that Section there appear data with respect to the 114 meetings that have been held during those 12 years.

The abstracts of those meetings and the topics discussed permit the positive conclusion that to be a member of that Section is a real privilege.

The subjects are by no means "local" in character, and yet sufficient papers obviously local indicate that the members are keeping abreast of home affairs.

"Our National Parks," "The Dawn of Civilization in the Valley of the Nile," "The Labor Situation from the Contractor's Point of View," "The Change of Climate," "The Larger Nile Project," "The Future of Engineering," "The Work of Mt. Wilson Observatory," are the titles of some of the less technical papers and contrast with "A Comprehensive Rapid Transit Plan . . ." and "The Administration Center Plan

for the City of Los Angeles," or "Sewage Disposal Plan for County of Los Angeles."

The membership in the Section on December 9, 1925, was 352.

"The Oldest Members"

"PROCEEDINGS" of January last mentioned Charles McMillan as being the oldest member of the Society.

This announcement led to other thoughts along the same line and accordingly there has been prepared a list of the 25 persons who have been connected with the Society for the longest period in any or all grades.

Name	Date of Election
Charles McMillan	1868
Wm. S. Auchincloss	1869
Ralph Gooding Packard	"
Cady Staley	"
Clemens Herschel	"
Hezekiah Bissell	"
Charles Macdonald	"
John Nichol	1872
William Walter Maclay	"
Henry Goslee Prout	"
Thomas Pearson Kinsley	1873
William Hubert Burr	1874
Josiah Foster Flagg	"
Robert Fletcher	"
John Willmuth Hill	1875
Charles Penrose Perkins	"
Frederick Billings Howard	"
George Strong Baxter	"
Robert Forsyth	"
Charles Gobrecht Darrach	1876
Caspar W. Haines	"
Henry N. Francis	"
C. E. Billin	"
Frank O. Whitney	"
Charles R. Flint	"

It is interesting to note that the very newest of these members has been associated with the Society for just 50 years.

Mailing Transactions

IT is hoped that every member has received his copy of the volume of "Transactions" which was mailed the early part of October.

Those who changed their addresses on the national moving day, October 1, may be put to some inconvenience by the necessity of having their books re-mailed. The Society, however, has made every effort to reduce this delay to a minimum.

The preparation of these 12,000 volumes for distribution is very laborious. From the standpoint of our Mailing Department, it is the most difficult of all the Society publications.

Labels are first addressed to all members and sorted into three groups corresponding to the type of binding desired, *i. e.*, paper, cloth, or half morocco. Each of these groups then has to be segregated again into fourteen divisions, including eight postal zones in the United States besides also those for various foreign countries, so that the three groups have now become forty-two in number.

Changes of address are included up to the latest practicable minute; but even so, some 200 or 300 will be received during the process of affixing the stamps, which takes considerable time because of the varying postage.

These labels then go to the binder, to be pasted on the containers into which the volumes are inserted, each group then being bagged and trucked to the Post Office.

Magazines have the same trouble with their changes of address and require three weeks' notice for regular issues. A very real effort is made to have the addresses on "Transactions" represent even prompter service.

Code Assumes Shape

SEPTEMBER Proceedings contained a draft of a "Code for the Guidance of Engineers in Professional Practice," on which the comment of the membership was requested.

Several helpful suggestions were received and are now being studied by the original framers of the document, a committee of seven members of the Northeastern Section. Under their study and that of the Professional Conduct Committee the Code is assuming definite shape.



Old style badge

The new style

New Style Badges

THE new style badges for Junior and Student members of the Society are now ready for distribution. As formerly, they are blue and white enamel designating Junior membership, and maroon and white designating Student membership. The price is \$2 each for the Junior, and \$1 each for the Student pins.

The change is principally in the general shape of the pin from a circle to a shield of the same dimension as the Corporate Member badge. This substitutes for the former irregular border one symmetrical with the margin of badge. It also increases the size of the field slightly, making possible better workmanship on the lettering.

The prices charged are at a slight advance over former ones and are made necessary by the increase in the amount of gold. Pins for Juniors are of 8 K. gold—those for Students are simply gold filled, but nevertheless should wear well throughout the time of a student's affiliation with his Chapter.

A Spurious Member

NOTICE has been received that a person calling himself D. R. Peterson, who is not a member of the Society, has acquired, in some way, a Society badge and apparently is using it to ingratiate himself into people's confidence for purposes of fraud.

The Society has members in good standing, named Peterson or Petterson, resident in Texarkana, Brooklyn, Porto Rico, Cincinnati, Minneapolis, San Francisco and Chicago, with whom, of course, the spurious member is not to be confused.

Should any of our members be approached by one giving the name of D. R. Peterson and claiming to be a member of the Society, he should be cautious. Information also, in detail, should be sent at once to Society Headquarters.

November Proceedings

THE first paper in the November Proceedings is "Quantities of Materials and Costs Per Square Foot of Floor for Highway and Electric Railway Long-Span Suspension Bridges," by J. A. L. Waddell, M. Am. Soc. C. E. Most of the information is given in the form of curves, fully explained, so that "any engineer of good general experience can compute, in two or three hours, when full preliminary data are furnished, the total cost" of the structure. An example is carried through to illustrate the practical application of the method described.

In a paper entitled "Venturi Tube Characteristics," J. W. Ledoux, M. Am. Soc. C. E., describes tests under his direction to determine the coefficients and losses in using Venturi meters and the effects of the shape of the throat.

An enumeration of the topics covered by the various discussions will give a good cross-section of the engineering studies being carried on at the present moment by members. Among these topics may be mentioned River Hydraulics, Corrosion of Concrete, Stream Regulation, Street Traffic, Frequency Curves, Concrete Reinforcing, City Planning, Grit Chamber Design, Concrete Production, Garbage Disposal, New York State Barge Canal, and Steel Column Research. Certainly this list could not be criticized as showing narrow specialization.

In addition, 12 memoirs of deceased members pay a brief tribute to their lives and accomplishments.

Paid-up Membership

IN July of last year the Board of Direction adopted, for the convenience of the membership, a plan affording an arrangement for taking care of all future dues by a single payment on an equitable basis.

The 1926 Year Book carries on page 36 a table with figures varying in amount dependent upon the age of the member and the number of years, after which, under the provision of the constitution, he would be exempt from future dues.

The figures in the table are as for December 31st of any year and are subject to a 5% discount for any date prior to that time.

Vreien Deutscher Ingenieure

THE Verein Deutscher Ingenieure was founded May 12, 1856, at Alexisbad, in Harz, by a group of young engineers, graduates of the Königlische (Royal) Gewerbe-Institut of Berlin. It does not confine its membership to civil engineers, but includes all branches of the engineering profession. At the present time it has about 30,000 members, distributed among 50 regional associations which cover the whole territory of Germany, and three groups of members in other countries. The headquarters of the Verein is at Berlin.

From the beginning, the purpose of the Verein has been to unite the technical men of the whole nation, and these regional associations, or "Berzirksvereine," have played an important part in the development of the Verein as a whole. Their delegates make up the Advisory Council which guides its activities, and from which is chosen the smaller body called the "Vorstand," which most nearly corresponds to the Board of Direction of the American Society of Civil Engineers. They may assess dues upon their members in addition to those paid to the central office. Every new member joining the Verein must make his application through one of the regional associations, and is assigned to membership in one of them unless he lives in another country.

Membership is divided into three grades—the regular and the honorary members, and those still in training for the profession, who are known as "visiting members." The signatures of two sponsors must appear on the application. The candidate may have had either technical training in some branch of engineering, or a sufficient number of years of experience, or both, but there is no such strict division into grades as obtains in the American Society of Civil Engineers. The regular members must be at least 24 years old, "visiting members," 20 years.

The Verein devotes much attention and a large proportion of its funds to research work. It takes an interest in public education, in technical training, in the placing of engineers,

and in general legislation. It publishes both books and periodicals, the best known being the weekly organ, *Zeitschrift*.

The dues for the year 1926 are fixed at approximately seven dollars in American money, which, however, may be reduced to one-half that amount if the member wishes to do without *Zeitschrift*.

An Empire Builder— Grenville M. Dodge

(Continued from page 1)

mitted wilfully to deceive an Indian or to do him an injustice, and to this he attributed a continuous success during fifteen years of close association with the Red Men.

Shrewd acceptance of circumstances, however, was not overlooked and the advent of the telegraph proved a valued opportunity. A line was built connecting Forts Laramie and Kearney, 300 miles apart, and Dodge, stationing several Indian chiefs at each end, sent a message and then had them race toward each other on their swiftest ponies to illustrate not only the saving in time but the accuracy of the message.

Thereafter they conceived it was "Big Medicine" talking, and a reverence for the poles and wires became ingrained—a fortunate circumstance. They would lean against the poles listening to the humming of the wires and try to decipher the messages (they persisted in believing) Dodge so easily understood!

Indirectly the Indians were the cause of his discovering the long-sought-for, but almost despaired of, pass through the Black Hills. In quest of this, he took a small party scouting along the foothills. The crafty Indians cut off his return and for the time being monopolized attention. It was almost nightfall before the main column saw his smoke signals and came to the rescue. Meanwhile, he made a mental note of the extremely favorable gradient of that valley, which, years later, he utilized for the main line of the Union Pacific.

General Dodge's reputation as a master railroad builder was made secure by what he did in three years as Chief Engineer in building the Union Pacific. In reality, however, the whole period following 1853 was

one continuous apprenticeship to this task. By virtue of his early surveys and construction activities, his noteworthy experiences in the Civil War and his later duties as military commander of the Departments of Missouri and Kansas, he was qualified as no one else to grapple with this gigantic problem.

The task was typical of that day. All materials, supplies, subsistence and labor had to be brought at first from the East to what is now Omaha by way of the Missouri River during the navigation season. Later, during the course of the work (Nov., 1867) the Northwestern Road was completed to Council Bluffs, opposite Omaha, greatly simplifying the difficulty.

Considering these handicaps together with the restricted working season, the inhospitable country traversed, the ever-increasing distance from the base of supply, and the almost-constant aggressive hostility of all the Indian tribes, the accomplishment was indeed remarkable. Even to-day the record looks imposing: 260 miles of main line built in 1866; 246 in 1867; and from April 1, 1868, to May 10, 1869, 555 miles!

The haste of the last year's work, continuing through the severe winter, was not without good cause. The Central Pacific, working eastward from San Francisco, and the Union Pacific from the opposite direction, were both receiving loans from the Government according to the mileage constructed, each with permission to build until they joined.

This momentous event occurred on May 10, 1869, at Promontory Point, Utah, just west of Ogden. At this ceremony, gold and silver railway spikes, figured, all the prominent personages taking a hand at the sledge but few hitting the mark, to the vast amusement of the crowd. Meanwhile the telegraph heralded the occasion from the Pacific to the Atlantic and wild scenes of rejoicing occurred in New York, Chicago, and Omaha.

Dodge's services in building (and in financing) the Union Pacific and many other Western railroads guarantee for him an honored and abiding place in the fore rank of constructive citizenship. He was proud of his engineering training and its results. In return, the profession was justly proud of him; he was made an Honorary Member of the Society.

